

REMARKS

Claims 1, 3 and 5-22 are pending in this application. By this Amendment, FIG. 4 is replaced by FIGs. 4A-4B, the specification and claims 1, 3, 5, 9, 11 and 12 are amended, claims 2 and 4 are canceled without prejudice or disclaimer and new claims 14-22 are added. Various amendments are made to the claims for clarity, and are unrelated to issues of patentability.

The Office Action objects to the specification and claim 9 because of informalities. It is respectfully submitted that the above amendments obviate the grounds for objection. Withdrawal of the objections is respectfully requested.

The Office Action objects to the drawings under 37 C.F.R. §1.83(a). By this Amendment, FIG. 4 is replaced with FIGs. 4A-4B. FIG. 4B shows the features of claim 5. Withdrawal of the objection is respectfully requested.

The Office Action rejects claim 12 under 35 U.S.C. §112, first paragraph as failing to comply with the enablement requirement. The above amendment obviates the grounds for rejection. More specifically, the lower voltage generating unit (recited in claim 12) operates based on a lower switching control signal (as recited in claim 6 and as discussed in the Office Action). Independent claim 12 is amended to recite that the lower voltage generating unit comprises switching devices having a push-pull form turned on/off on the basis of the lower switching control signal. Independent claim 12 satisfies 35 U.S.C. §112, first paragraph. Withdrawal of the rejection is respectfully requested.

The Office Action rejects claim 1 under 35 U.S.C. §102(b) over U.S. Patent 5,420,602 to Kanazawa (hereafter Kanazawa). The Office Action also rejects claims 2-5 under 35 U.S.C. §103(a) over Kanazawa in view of U.S. Patent No. 6,756,958 to Furuhashi et al. (hereafter Furuhashi). The Office Action further rejects claims 6-13 under 35 U.S.C. §103(a) over Kanazawa in view of U.S. Patent Publication No. 2002/0196210 issued to Moon (hereafter Moon). The rejections are respectfully traversed with respect to the pending claims.

The present specification relates to an apparatus for driving a flat display panel including a scan driving unit for controlling an upper voltage value and a lower voltage value applied to an IC that drives scan electrodes of the flat display panel. The scan driving unit may include an upper voltage generating unit, a lower voltage generating unit and an amplifying unit. The amplifying unit may amplify the upper voltage value by an amount that equals a predetermined level, or may convert the upper voltage value into current and amplify the converted current by an amount that equals the predetermined level. The amplifying unit may be an OP-AMP, or an OP-AMP and a TR connected with an output terminal of the OP-AMP.

Independent claim 1 recites a scan driving unit for controlling an upper voltage value and a lower voltage value which are applied to an Integrated Circuit (IC) for driving a scan electrode of a flat display panel, wherein the scan driving unit comprises an amplifying unit for at least one of amplifying the upper voltage value to a predetermined level or converting the upper voltage value to a current and amplifying the converted current to a predetermined level.

In contrast, Kanazawa's FIG. 40 discloses a Y scan driver 104' that includes a selection circuit Mi which selectively outputs an output of a Y driver 105' and an input of Va through a gate operation of an output signal Qi, a Y-Strobe1 signal (Y-STB1) and a Y-Strobe2 signal (Y-STB2) of a shift resistor. The selection circuit Mi outputs one of the predetermined voltage levels GND, Va and Vs.

However, Kanazawa does not teach or suggest the claimed amplifying unit. More specifically, Kanazawa does not suggest amplifying the upper voltage value to a predetermined level, or converting the upper voltage value to a current and amplifying the converted current to a predetermined level.

Kanazawa also teaches that the selection circuit Mi performs the gate operation on the output signal Qi, the Y-Strobe1 signal (Y-STB1) and the Y-Strobe2 signal (Y-STB2) of the shift resistor. This is more complicated than the structure of the scan driving IC 145 (FIGs. 4A and 4B) discussed in the present specification. The structure of Kanazawa's selection circuit Mi is different from the apparatus (scan driving IC 145 of the present specification). Kanazawa may not obtain the results of a reduction in power consumption and unit cost that can be achieved by the structure discussed in the present specification.

Furuhashi discloses that the current amplifying circuits (802 and 314) amplify outputs of the amplifying circuits (801 and 313). However, Furuhashi does not teach or suggest the claimed amplifying unit and/or converting the upper voltage value to a current and amplifying the

converted current to a predetermined level. Additionally, Furuhashi relates to a liquid crystal panel and the driving of pixels of the panel. Furuhashi outputs a common voltage (on line 16) and a gate-off voltage. This clearly differs from the driving technique of a plasma display panel of Kanazawa. For example, Kanazawa discusses write pulses, sustain discharge pulses, addressing pulses. These pulses do not correspond to the gate-off voltage discussed in Furuhashi. It is respectfully submitted that Furuhashi and Kanazawa may not be combined as alleged.

Moon discloses that a reset driving unit 510 (FIG. 6) supplies reset pulses to the scan electrodes. The reset driving unit 510 outputs one of the predetermined voltage levels of GND and VCC. The reset driving unit 510 does not suggest the claimed amplifying unit and/or converting the upper voltage value to a current and amplifying the converted current to a predetermined level.

For at least the reasons set forth above, Kanazawa and the other applied references do not teach or suggest all the features of independent claim 1. Thus, independent claim 1 defines patentable subject matter.

Independent claim 14 recites a scan driving unit to control an upper voltage value and a lower voltage value to be applied to a circuit for driving a scan electrode of a flat display panel, the scan driving unit including an amplifying unit to convert the upper voltage value to a current and amplify the converted current to a predetermined level. For at least similar reasons as set

forth above, the applied references do not teach or suggest all the features of independent claim

14. Thus, independent claim 14 defines patentable subject matter.

For at least the reasons set forth above, each of independent claims 1 and 14 define patentable subject matter. Each of the dependent claims depends from one of the independent claims and therefore defines patentable subject matter at least for this reason. In addition, the dependent claims recite features that further and independently distinguish over the applied references.

CONCLUSION

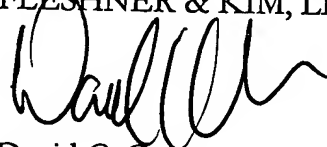
In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1, 3 and 5-22 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

Serial No. **10/757,476**
Reply to Office Action of **September 22, 2006**

Docket No. **P-0642**

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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AMENDMENTS TO THE DRAWINGS

The attached drawings include changes to Figure 4. These sheets, which include Figures 4A and 4B, replace the original sheet including Figure 4. Figure 4A corresponds to the original Figure 4 and Figure 4B includes the transistor coupled to an operational amplifier. Features of Figure 4B are discussed in the paragraph beginning at page 9, line 13 of the specification and original claim 5.

Attachment: Replacement Sheets Figures 4A and 4B